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10/567,574	02/08/2006	Ashleigh Glen Quick	P29151	9280
7055	7590	06/12/2009	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			MANOJHARAN, MUTHUSWAMY GANAPATHY	
ART UNIT	PAPER NUMBER			
			2617	
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)
	10/567,574 Examiner MUTHUSWAMY G. MANOHARAN	QUICK ET AL. Art Unit 2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 08 February 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-43 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claims 4-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 4-6 are directed to a communication protocol, i.e., data structure, per se, which is non-statutory.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 1, 4, 14, 16, 19, 27, 35 and 37, the subject matter, "the first transceiver and the second transceiver are separated by a distance greater than a maximum transmission range of at least one of the transceivers" is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with

which it is most nearly connected, to make and/or use the invention. It is not clear how the repeater knows whether the transceivers are separated by a distance greater than a maximum transmission range of at least one of the transceivers.

The dependent claims are also rejected since they are dependent on the rejected base claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 4, 14, 16, 19, 27, 35 and 37, the recitation of the phrase, "the first transceiver and the second transceiver are separated by a distance greater than a maximum transmission range of at least one of the transceivers" is not clear what the applicant meant by maximum transmission range. The maximum transmission range could depend on several factors such as type of antenna, battery power, location of the transmitter, repeater and receiver etc.

The dependent claims are also rejected since they are dependent on the rejected base claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 10, 14, 16, 19, 27, 35 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Brederveld et al. (hereinafter Brederveld) (US 5898679).

Regarding **claim 1**, Brederveld teaches a radio communication system including a first transceiver (source end station, abstract), a second transceiver (destination end station, abstract) and a repeater (relay, abstract), the first and second transceivers being separated from each other by a distance greater than at least one of their respective maximum transmission ranges, and the repeater being located intermediate the first and second transceivers (if there is no S-bleep then the first and second transceivers are separated by a distance greater than max. transm. range, col. 6, 45-48), the method including:

upon receiving data from one of either the first or second transceivers, the repeater transmits a repeater flag to cause the transceivers to suspend further action and then transmits the data received from the one of either the first or second transceivers ("R-BLEEP", reads on repeater flag, col. 6, line 27; "the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45).

Regarding **claim 4**, Brederveld teaches a communications protocol for use in a network of devices, the protocol having a frame including a first time slot for

transmitting data (source end station transmits a message", col. 5, lines 34-35), a second time slot, after the first time slot, for indicating a repeat flag ("R-BLEEP", col. 5, line 55), and a third time slot, after the second time slot, for retransmitting the data transmitted in the first time slot (col. 5, lines 54-57).

Regarding **claim 10**, Brederveld teaches a radio communication system including a first transceiver, a second transceiver and a repeater, the first and second transceivers being separated from each other by a distance greater than at least one of their respective maximum transmission ranges, and the repeater being located intermediate the first and second transceivers, wherein upon receiving data from one of either the first or second transceivers, in a first time slot, the repeater transmits a repeater flag in a second time slot to cause the transceiver to suspend further action, and then in a third time slot transmits the data received in the first time slot ("R-BLEEP", reads on repeater flag, col. 6, line 27; "the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45).

Regarding **claim 14**, Brederveld teaches a repeater for use in a radio communication system including at least two transceivers, the at least two transceivers being separated from each other by a distance greater than at least one of their respective transmitting ranges, in use, the repeater being disposed intermediate the at least two transceivers wherein upon receiving data in a first time slot, the repeater transmits a repeat flag in a second time slot to cause the transceivers to suspend further action, and then transmits in a third time slot, data received in the first time slot

("R-BLEEP", reads on repeater flag, col. 6, line 27; "the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45; transmit an R-BLEEP to the source end station and then repeat the message to the destination end station, col. 6, lines 30-35).

Regarding **claim 16**, Brederveld teaches a transceiver for use in a radio communication system including at least one other transceiver and a repeater, the transceiver and the at least one other transceiver being separated from each other by a distance greater than at least one of their respective transmitting ranges, in use, the repeater being disposed intermediate the transceiver and the at least one other transceiver, wherein upon receiving a repeat flag from the repeater, in a second time slot, the transceiver suspends further action until it receives from the repeater, in a third time slot, data that was originally transmitted by the at least one other transceiver in a first time slot, before the second time slot ("R-BLEEP", reads on repeater flag, col. 6, line 27; "the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45; transmit an R-BLEEP to the source end station and then repeat the message to the destination end station, col. 6, lines 30-35).

Regarding **claim 19**, Brederveld teaches a method for use in a radio communications system including at least a first transceiver, a second transceiver and a repeater, the first transceiver and the second transceiver being separated by a distance greater than a maximum transmission range of at least one of the transceivers, and the repeater being disposed intermediate the first and second

transceivers, such that upon receipt of a data transmission from the first transceiver, the repeater re-transmits the data transmission from the first transceiver, wherein upon receipt of a data transmission from the second transceiver before the repeater completely receives or retransmits the data transmission from the first transceiver, the repeater transmits a data sequence instructing each transceiver to cease its respective transmission("the AP could selectively repeat the message transmitted by MS 120, MS 120 and MS 121 could read on first and second transceivers; col. 5, lines 40-45; transmit an R-BLEEP to the source end station and then repeat the message to the destination end station, col. 6, lines 30-35).

Claim 27, 35 and 37 are rejected for the same reason as set forth in claim 19.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3, 5, 15, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (hereinafter Brederveld) (US 5898679) in view of Fujii et al. (hereinafter Fujii) (US 2002/0106011).

Regarding **claim 2**, Brederveld teaches all the particulars of the claim except the method wherein the first and second transceivers transmit an acknowledgement indicating the successful or unsuccessful receipt of the data transmitted by the repeater. However, Fujii teaches in an analogous art wherein the first and second

transceivers transmit an acknowledgement indicating the successful or unsuccessful receipt of the data transmitted by the repeater (Figure 4). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use a method wherein the first and second transceivers transmit an acknowledgement indicating the successful or unsuccessful receipt of the data transmitted by the repeater in order to provide confirmation so as to avoid retransmission.

Regarding **claim 3**, Bredveld teaches a method wherein upon receipt of the acknowledgements from each of the first and second transceivers, the repeater will transmit an overall status for the repeated transmission (report status of "no repeat", status of the message to "repeat", col. 8, lines 27-38)

Claim 5 is rejected for the same reason as set forth in claim 2.

Claim 15 is rejected for the same reason as set forth in claims 2 and 3.

Claims 11 and 17 are rejected for the same reason as set forth in claim 5.

Claims 6-9, 12-13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (hereinafter Brederveld) (US 5898679) in view of Fujii et al. (hereinafter Fujii) (US 2002/0106011) and Hwang et al. (hereinafter Hwang) (US 2003/0108013).

Regarding **claim 6**, the combination of Brederval and Fujii teaches all the particulars of the claim except wherein the fourth time slot is divided into a first sub-time slot for indicating a positive acknowledgement and a second sub-time slot for indicating a negative acknowledge. However, hwang teaches in an analogous art wherein the fourth time slot is divided into a first sub-time slot for indicating a positive

acknowledgement and a second sub-time slot for indicating a negative acknowledgement (ACK or NACK and CQI information in the three slots, which are subframes; Paragraph [0103]).

Regarding **claim 7**, Brederveld teaches a communications protocol in which the first and third time slots are variable in length and the first and second sub-time slots are fixed in length (Brederveld: Figure 2; Fujii: Figure 1c).

Regarding **claim 8**, Fujii teaches a communications protocol according to claim 6, wherein the positive acknowledge includes the transmission of a specific coded value containing sufficient redundancy to allow it to be recovered in the presence of received errors, and the negative acknowledge includes the transmission of a specific coded value containing sufficient redundancy to allow it to be recovered in the presence of received errors (Paragraph [0058, 0065]).

Regarding **claim 9**, Brederveld teaches a communications protocol further including a fifth time slot for transmitting an overall status to the network (Col. 8, lines 27-38).

Claims 12-13 are rejected for the same reason as set forth in claims 6 and 9 respectively.

Claim 18 is rejected for the same reason as set forth in claim 6.

Claims 20-21, 28-29, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (hereinafter Brederveld) (US 5898679) in view of Stutz (US 2002/0128996).

Regarding **claim 20**, Brederveld teaches all the particulars of the claim except a method wherein the respective transmissions of the first and second transceivers are headed by a sequence of consecutive dominant bits. However, Stutz teaches in an analogous art a method wherein the respective transmissions of the first and second transceivers are headed by a sequence of consecutive dominant bits (Paragraph [0052]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use a method wherein the respective transmissions of the first and second transceivers are headed by a sequence of consecutive dominant bits in order to avoid transmitting separate collision avoiding signals.

Regarding **claim 21**, Stutz teaches a method wherein the data sequence transmitted by the repeater begins with a sequence of dominant bits (Paragraph [0052]).

Claims 28-29 are rejected for the same reason as set forth in claims 20-21 respectively.

Claim 36 is rejected for the same reason as set forth in claim 20.

Claim 38 is rejected for the same reason as set forth in claim 21.

Claims 22-26, 30-35 and 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (hereinafter Brederveld) (US 5898679) in view of Stutz (US 2002/0128996) and Soh et al. (hereinafter Soh) (US 6539028).

Regarding **claim 22**, the combination of Brederveld and Stutz teaches all the particulars of the claim except a method further including upon receiving the data

sequence from the repeater, causing each transceiver to cease transmitting, each transceiver will delay for a period before attempting to repeat its original transmission. However, Soh teaches in an analogous art a method further including upon receiving the data sequence from the repeater, causing each transceiver to cease transmitting, each transceiver will delay for a period before attempting to repeat its original transmission (random back-off, Col. 4, line 44). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use a a method further including upon receiving the data sequence from the repeater, causing each transceiver to cease transmitting, each transceiver will delay for a period before attempting to repeat its original transmission in order to avoid further collision.

Regarding **claim 23**, Soh teaches a method wherein the delay period is calculated by each transceiver by selecting a random number and scaling the random number according to the number of bits in its respective transmission(random back-off, Col. 4, line 44).

Regarding **claim 24**, Soh teaches a method wherein if subsequent transmission retries still collide, subsequently calculated delay periods are increased (Col. 4, lines 40-46; CSMA/CD, Col. 3, line 7).

Regarding **claim 25**, Soh teaches a method wherein after a predetermined number of unsuccessful retries, the transceiver ceases further transmission attempts (Col. 4, lines 40-46; CSMA/CD, Col. 3, line 7).

Regarding **claim 26**, Soh teaches a method wherein after ceasing further transmission attempts, the network alerts an operator that further transmission attempts have ceased (Col. 4, lines 40-46; CSMA/CD, Col. 3, line 7).

. **Claims 30-35** are rejected for the same reason as set forth in claims 22-26 respectively.

Claims 39-43 are rejected for the same reason as set forth in claims 22-26 respectively.

Response to Arguments

Applicant's arguments with respect to claim restrictions have been considered. Claim restrictions have been withdrawn. Therefore, the arguments are moot.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MUTHUSWAMY G. MANOHARAN whose telephone number is (571)272-5515. The examiner can normally be reached on 7:00AM-2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eng George can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617